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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/517,084	04/06/2005	Michael Ryan	KEX0021US2	8710

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EXAMINER	
CORDRAY, DENNIS R	
ART UNIT	**PAPER NUMBER**
1791	

NOTIFICATION DATE	DELIVERY MODE
12/10/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/517,084	RYAN ET AL.	
	Examiner	Art Unit	
	DENNIS CORDRAY	1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 August 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,4-10,13-15,17,18 and 21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4-10,13-15,17,18 and 21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments and amendments have overcome the rejections of claims over Sheppard et al in view of others as currently formulated. Sheppard et al does not disclose a wet-laid web. Therefore, the indicated rejections have been withdrawn. However, upon further consideration, and due to the amendments, new grounds of rejection are presented as detailed below.

The rejections based on Lindsay et al are maintained but have been modified to address the amendments to the claims.

2. Applicant's arguments have been fully considered but they are not persuasive.

Applicant argues on pp 6-8 that the current claims exclude the polyvinylamine of Lindsay et al. They do not. The claims require a reacted nonionic or cationic strength agent selected from the Markush grouping listed but do not exclude another strength agent such as the polyvinylamine of Lindsay et al from being used along with the claimed strength agent. Lindsay et al discloses that the polyvinylamine and a complexing agent, such as a polymeric anionic reactive compound, are each added to the web in an amount from about 0.1% to about 10% by weight based on the dry weight of the web. Lindsay et al also discloses that other strength agents can be used in conjunction with the polyvinylamine, including several from the claimed group. In particular, Lindsay et al further discloses that polymeric aldehyde functional polymers

can be used similar to the polymeric anionic reactive compound. Thus, polymers from the claimed group can be added to the web in the claimed amounts.

Claim Rejections - 35 USC § 102 and 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 1, 5-10, 13-15, 18 and 21 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Lindsay et al (6824650).

Claims 1, 6, 9, 10, 13, 14, 18 and 21: Lindsay et al discloses facial tissues and bath tissues comprising a fibrous substrate and a combination of a polyvinylamine and an aldehyde-functional polymer as wet strength agents. The products are made by providing a fibrous web containing pulp fibers, which can be wet-laid, and combining the web with the polyvinylamine and an aldehyde-functional polymer (Abs; col 1, lines 41-61; col 2, lines 40-60; col 3, lines 35-38; col 4, lines 1-9; col 15, lines 23-34). In examples, tissues having a basis weight of 60 gsm are made (col 28, lines 40-44 and 59-61).

The aldehyde-functional polymer can be a glyoxylated polyacrylamide or a dialdehyde guar (col 9, lines 16-18 and 39-40; col 10, lines 6-20). The polyvinylamine and an aldehyde-functional polymer can each be added in an amount from about 0.1% to about 10%, and more specifically from about 0.1% to about 4%, or from about 0.1% to about 2%, by weight of the dry mass of the web (col 13, lines 21-25). Other disclosed

wet strength agents used with the invention include polyamide-polyamine-epichlorohydrin resins, polyethyleneimine resins and aminoplast resins obtained from the reaction of formaldehyde with melamine or urea (col 11, lines 13-28).

The web is heated to provide interaction between the polymers (thus the aldehyde-functional polymer is reacted) (col 11, lines 62-64).

The polyvinylamine and aldehyde-functional polymer can be applied in a pattern to one or more layers (which can be called first and second surfaces) of the web (col 13, lines 58-65). In some embodiments, the polymers can be selectively concentrated in densified regions of a pattern densified web to provide strength regions (col 14, lines 12-38). The portions of the web having little or no strength agents corresponds to the claimed dispersibility regions. In other embodiments, due to migration within the web and the method of drying the web, the water soluble materials can be present in a relatively higher concentration in densified or in less densified regions than in other regions of the web (col 14, line 46 to col 15, line 15). In this embodiment the areas of higher concentration correspond to the claimed strength regions, while the areas of lower concentration correspond to the claimed dispersibility regions.

The tissues of Lindsay et al inherently have a dry strength or they could not be picked up and used. Numerous examples are shown of tissues having a wet/dry tensile of greater than 5% (cols 37-48, Tables 3, 6, 7 and 8). The dispersibility is not disclosed. However, the tissue products of Lindsay et al have a substantially identical structure to the claimed tissues, thus will possess the claimed dispersibility because, where the claimed and prior art apparatus or product are identical or substantially identical in

structure or composition, a *prima facie* case of obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). In other words, when the structure recited in the reference is substantially identical to that of the claims, the claimed properties or functions are presumed to be inherent or, at least, would have been obvious to one of ordinary skill in the art.

Claim 5: Due to the migration or penetration into the web, in some embodiments the strength agents are also located within the web adjacent to a surface as well as on the surface (col 11, lines 65-67; col 12, lines 39-41). Alternatively, Lindsay et al discloses that each layer in the web can be independently treated or untreated. Thus, a treated layer adjacent to an untreated layer provides a strength agent adjacent to a surface (which can be called a first surface) of the web (col 13, lines 61-66).

Claims 7 and 8: Lindsay et al discloses that the web can be slit or perforated (col 21, lines 45-50). Due to migration within the web, the slits or perforations will fill with the applied polymers or, at least, such migration would have been obvious to one of ordinary skill in the art.

Claim 15: Lindsay et al discloses that a debonder can be applied to the web to lower the dry strength without a large decrease in wet strength, thus the debonder is in some manner reacted with the web components (reacted strength reducing material) to affect the chemical or physical attributes thereof and reduce the strength of the web (col 19, lines 33-36).

5. Claims 4 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lindsay et al in view of Drelich et al (3865775).

The disclosure of Lindsay et al is used as above. Lindsay et al does not disclose the claimed patterns. Lindsay et al does disclose printing the polyvinylamine and aldehyde-functional polymer onto the web (col 12, lines 19-21) and that polymers can be applied in a pattern (col 13, lines 58 and 59).

Drelich et al teaches that well known printed bonding patterns applied to flushable fibrous webs include interconnecting or interlocking grids comprising straight or wavy lines extending transversely or diagonally across the webs and additionally, if desired, along the web (Abs; col 2, lines 24-30 and 42-46; col 17, lines 15-18).

The art of Lindsay et al and Drelich et al is analogous as pertaining to flushable fibrous webs comprising applied patterns of bonding agents. It would have been obvious to one of ordinary skill in the art to apply the polyvinylamine and aldehyde-functional polymer in the claimed patterns to the tissue web of Lindsay et al in view of Drelich et al as typical printing patterns used in the art.

6. Claims 1, 4-6, 9, 10, 13-15, 17, 18 and 21 are rejected under 35 U.S.C. 103(a) as unpatentable over Sheppard et al (3702610) in view of Champaigne Jr. et al (3616797) and further in view of Lindsay et al and even further in view of Chen et al (6261679) and Orarian et al (6017418), as evidenced by Drelich et al (3865775).

Claims 1, 4, 5, 9, 10, 13, 18 and 21: Sheppard et al discloses a paper product comprising a fibrous substrate (wrapper) having a spaced pattern of water-dispersible

adhesive or binder (strength agents), thus creating regions comprising a cationic or nonionic strength agent and dispersibility regions (regions devoid of the strength agent). After a short time of immersion in water, the binder loses its binding power thus permitting the web to disintegrate when dropped in a toilet for disposal (Abs; col 2, lines 3-20; col 3, lines 54-61). Since water causes the binder to lose its binding power, the product treated with water, either wetted in use or during disposal, comprises a reacted strength reducing material (water). Alternatively, the amount of reacted strength reducing material is not recited, thus the equilibrium water content of products reads on a reacted strength reducing material. The webs weigh about 14 g/sq. yard, or 15 gsm. The binder is printed in a grid (selectively applied) consisting of two sets of parallel lines extending diagonally across the web at 45° in both directions and intersecting each other to provide a closed diamond pattern. The lines are about 1/16" wide and spaced about ¼" apart, thus cover about 25% of the web's surface. Other patterns are disclosed, such as wavy lines that are transversely or diagonally disposed. After being printed on the surface, the binder is inherently adjacent to a first surface. The amount of binder used is from about 5% to about 15% by weight (assumed to be the weight of the fibrous web).

The binder or adhesive comprises a colored dye to indicate dissolution of the adhesive in water. When the product is placed in the water in a toilet bowl for 30 seconds, the color fades to indicate that the adhesive has softened or dissolved. The product then breaks up or disintegrates upon flushing, thus is dispersible in a time greater than one second (col 1, lines 43-68; col 2, lines 28-34 and 41-59; col 3, lines 58-

63). A paper product inherently has some dry strength or it could not be made in the first place on any kind of papermaking apparatus and will immediately disintegrate in any position other than laying flat and motionless.

Sheppard et al discloses an alternative embodiment, further described in Champaigne Jr. et al, wherein a nonwoven fiber web is bonded by a water-soluble adhesive (dispersible region) and overprinted with a water-insoluble adhesive in a predetermined pattern of spaced segments (strength regions) (col 3, line 64 to col 4, line 9). Thus a web comprising strength regions having strength agent in an amount relatively more than in the dispersible regions is disclosed.

Champaigne Jr. et al discloses details of the alternative embodiment of a water-dispersible paper product described by Sheppard et al in the previous paragraph. The product comprises a fibrous wrapper and an absorbent layer or layers. The weight of the wrapper is 14 g/sq. yard, or about 15 gsm. The water-soluble binder is polyvinyl alcohol or other water-soluble or water-dispersible binder. Examples of water-insoluble binder include polyolefins, polyamides, cellulose acetates acrylates, lattices and the like. Thus, Champaigne Jr. et al discloses that other binders known in the art can be used. The water-insoluble binder is applied in rows of spaced linear segments. The segments of adjacent rows are disposed alternately, resembling courses of bricks, thus forming a grid of linear areas (Abs; col 1, line 59-col 2, line 56; col 2, lines 27-57; col 3, lines 45-56; col 4, lines 24-53). Champaigne Jr. et al discloses that the water-soluble binder is dissolved by excess water (thus serves as a temporary wet strength agent) while the water insoluble binder provides areas of permanent strength (col 3, lines 45-56).

Sheppard et al does not disclose a bathroom tissue or facial tissue or that the tissue is wet-laid. Sheppard et al further does not disclose the claimed strength agents or the wet strength of the paper product. Sheppard et al also does not disclose a reacted strength agent. Sheppard et al does disclose that other water-soluble or water-dispersible adhesives can be used as well (col 2, lines 23-25; col 3, lines 47-52).

The disclosure of Lindsay et al is used as above, and in particular to the description of the method of forming the webs. Lindsay et al discloses that the fibrous webs can be made by any method known in the art, including wet-laying (col 15, lines 20-35). The tissues can be used in tissue products such as facial tissues or bath tissues, paper towels, wipers, diapers, sanitary napkins, etc. (col 4, lines 5-11).

Chen et al ('679) discloses fibrous structures of cellulosic fibers used for feminine care pads, diapers, absorbing pads, wipes, tissues, etc. teaches that temporary and permanent wet strength agents are commonly used in the paper industry. Chen et al further teaches that some of the claimed strength agents (i.e.-cationic glyoxylated polyacrylamides and dialdehyde starches) are well known in the art as temporary wet strength agents that provide a paper product that loses more than 50% of its strength in water and becomes water dispersible (the polymers are soluble when incorporated in the product). Other claimed strength agents (i.e.-amine-epichlorohydrin resins, polyethyleneimines, urea formaldehydes, melamine formaldehydes) are well known in the art as permanent wet strength agents that provide a paper product that retains more than 50% of its strength in water (the polymers are insoluble when incorporated in the product) (Abs; col 2, lines 43-49; col 7, lines 35-37; col 39, line 41 to col 40, line 60).

Chen et al ('234) contains a similar disclosure of wet strength agents (Abs; col 6, line 20 to col 7, line 45).

Orarian et al discloses single- or multi-ply fibrous absorbent paper products in the form of napkin, towel, bathroom tissue or facial tissue (Abs). As a bathroom tissue, the paper product is inherently water dispersible. Orarian et al discloses many of the claimed polymers for use as temporary wet strength agents (Abs; col 16, lines 35-44; col 18, lines 15-26).

The art of Sheppard et al, Champaigne Jr. et al, Lindsay et al, Chen et al ('679), Orarian et al and the instant invention is analogous as pertaining to water-dispersible tissue products. The bathroom tissue and facial tissue of Lindsay et al, Chen et al ('679), Orarian et al and the wrappers of Sheppard and Champaigne, Jr comprise webs made from cellulosic fibers and also comprise temporary wet strength agents that allow the webs to disperse when disposed of in a commode. The products of Lindsay et al, Chen et al, Orarian et al, Sheppard et al and Champaigne, Jr are designed to contact a user's skin, to be soft, absorbent, and to disintegrate when disposed of in a commode. It would have been obvious to one of ordinary skill in the art to make facial tissues or bathroom tissues from the fibrous webs of Sheppard et al in view of Champaigne Jr. et al and further in view of Lindsay et al and even further in view of Chen et al ('679) and Orarian et al as typical water dispersible tissue products. Making the product by wet-laying would have been obvious as a functionally equivalent option well known in the art.

The adhesives of Sheppard et al and Champaigne, Jr. et al and the temporary wet strength agents of Chen et al '679 and Orarian et al are disclosed for the same purpose of dissolving or dispersing in water to allow the web to be dispersed in water and flushed. Absent evidence of unobvious results derived therefrom, it would have been obvious to one of ordinary skill in the art at the time of the invention to substitute any of the claimed strength agents as the water soluble binder of Sheppard et al as functionally equivalent, well known temporary strength agents. It would further have been obvious to use the temporary wet strength agents taught by Chen et al or Orarian et al as the water soluble binders and the permanent wet strength agents as the overprinted permanent strength binders in the embodiment taught by Sheppard et al and Champaigne Jr. et al. The binders are obviously reacted with the fibers in order to function as strength agents. It would further have been obvious to obtain the claimed wet strength for reasons given above.

Claims 6 and 14: Sheppard et al discloses that the fibrous substrate is wrapped around absorbent pads to form a sanitary napkin or diaper (col 2, lines 35-40), thus provides at least two surfaces on opposite sides of the absorbent pad that comprise the strength regions.

Claim 15: Orarian et al discloses adding softening agents to papermaking fibers to interfere with the natural fiber-to-fiber bonding (strength reducing material) and lead to softer papers and tissues (col 2, lines 20-39; col 7, lines 12-16). It would have been obvious to one of ordinary skill in the art to add debonding or softening agents as a typical additive to make the paper product feel softer when applied to the skin.

Alternatively, when the product is wetted, it comprises a strength reducing substance (water).

Claim 17: Although an interlocking pattern of serpentine lines is not explicitly disclosed, such a pattern would have been readily envisioned, and therefore obvious, to one of ordinary skill in the art. (If evidence is needed, Drelich et al teaches that well known printed bonding patterns applied to flushable fibrous webs include interconnecting or interlocking grids comprising straight or wavy lines extending transversely or diagonally across the webs and additionally, if desired, along the web (Abs; col 2, lines 24-30 and 42-46; col 17, lines 15-18)).

7. Claims 6 and 14 are rejected under 35 U.S.C. 103(a) as unpatentable over Sheppard et al in view of Champaigne Jr. et al, Lindsay et al, Chen et al ('679) and Orarian et al, as used in the rejection of claims 1, 4-6, 9, 10, 13-15, 17, 18 and 21 above, and further in view of Srinivasan et al (3913579).

Sheppard et al, Champaigne Jr. et al, Lindsay et al, Chen et al ('679) and Orarian et al do not explicitly disclose a strength agent on a second surface.

Srinivasan et al discloses a fibrous paper product comprising a flushable absorbent pad (second fibrous substrate) and an extremely flushable nonwoven fibrous cover (first fibrous substrate) bonded with a water-soluble resinous binder. The cover is reinforced with a water insoluble hot melt adhesive in spaced discrete lines in generally rectangular zones that cover approximately 30% of the total area of the cover to increase wet strength. The hot melt adhesive is applied to the inside of the cover so as

to not adversely affect the softness and feel of the cover. In spite of the additional wet strength imparted, the cover is readily disintegratable in a conventional toilet after soaking in excess water (Abs; col 1, lines 37-52; col 2, lines 6-29).

The art of Sheppard et al, Champaigne Jr. et al, Lindsay et al, Chen et al ('679), Orarian et al, Srinivasan et al and the instant invention is analogous as pertaining to water-dispersible paper products. It would have been obvious at the time of the invention to one of ordinary skill in the art to further print a second strength agent in a pattern on the inside of the wrapper (a second surface) and create regions of additional strength in the paper of Sheppard et al in view of Champaigne Jr. et al, Lindsay et al, Chen et al ('679 and Orarian et al, as used above, and further in view of Srinivasan et al to provide additional strength to the paper product while in use without adversely affecting the softness thereof.

8. Claims 7-8 are rejected under 35 U.S.C. 103(a) as unpatentable over Sheppard et al in view of Champaigne Jr. et al, Lindsay et al, Chen et al ('679) and Orarian et al, as used in the rejection of claims 1, 4-6, 9, 10, 13-15, 17, 18 and 21 above, and further in view of Sun et al (6322665).

Sheppard et al, Champaigne Jr. et al, Lindsay et al, Chen et al ('679) and Orarian et al do not disclose a perforated fibrous substrate.

Sun et al discloses high wet performance tissue webs comprising an anionic polymeric strength agent or binder, suitable for paper towels, toilet tissue (inherently water-dispersible), absorbent pads, feminine care pads and the like (Abs; col 2, lines

41-46; col 11, lines 13-18; col 14, lines 44-50). The strength agent is applied in a pattern such as a rectilinear grid of lines (col 11, lines 33-38). The uncreped webs have a basis weight of 10-80 gsm and a wet to dry strength ratio of at least 20% (col 14, lines 28-35 and 50-55). Typical physical treatments to the tissue web, before or after application of the binder, include being creped, apertured, slit, embossed or calendered (col 14,lines 38-40).

The art of Sheppard et al, Champaigne Jr. et al, Lindsay et al, Chen et al ('679), Orarian et al, Sun et al and the instant invention is analogous as pertaining to water-dispersible paper products. It would have been obvious at the time of the invention to one of ordinary skill in the art to provide slits or apertures in the paper product of Sheppard et al in view of Champaigne Jr. et al, Lindsay et al, Chen et al ('679 and Orarian et al, as used above, and further in view of Sun et al as typical physical treatments to enhance the feel or performance thereof. It would also have been obvious to one of ordinary skill in the art that binders applied to a slit or apertured web would collect in the slits or apertures due to lowered resistance to penetration of the web at the openings.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DENNIS CORDRAY whose telephone number is (571)272-8244. The examiner can normally be reached on M - F, 7:30 -4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Steven P. Griffin/
Supervisory Patent Examiner, Art Unit 1791

/Dennis Cordray/
Examiner, Art Unit 1791